6A.4

RTAS—Case fatality rate, crash injury rate and motor vehicles: Time trends between a developed and developing country

S.S. Goonewarde*, K. Baloch, K. Porter, K. Mangat

University Hospital Birmingham, UK

Introduction: RTCs (road traffic collisions) are one of the most common preventable causes of death and disability worldwide, and a major public health problem in developing countries.

We aim to investigate changes in numbers of motor vehicles, case fatality rate and crash injury rate over 10 years in the UK and Sri Lanka, and factors affecting this relationship.

Method: We utilised audit of government records and patient directed questionnaires (ethical approval obtained in both countries). Factors, e.g. environmental causes, visual impairment, pedestrian factors, wearing seatbelts, speed of vehicles, whether fatigued at accident were investigated. Results were analysed using percentages and chi squared analysis.

Results: We demonstrated numbers of motor vehicles have risen in both countries; crash injury rates rising in the UK whilst remaining stable in Sri Lanka and case fatality rate decreasing in both countries. 325 patients took part in the survey at the Sri Lankan end, with 83 at the UK end. Number of motor vehicles was higher in the UK yet the case fatality rate, but not crash injury rate was greater in Sri Lanka. Results including environmental causes, e.g. poor lighting were worse in Sri Lanka as was, visual impairment lack of seatbelt usage and speed of vehicles, which may contribute towards the higher case fatality rate. The majority of results were significantly different between the two countries.

Discussion: We discuss how factors investigated may impact on differences in case fatality, crash injury rate and number of motor vehicles between the two countries and propose recommendations to reduce case fatality and crash injury rates, e.g. target 'vulnerable' groups, e.g. young males for risk prevention, adequate lighting of roads both within/outside city limits, reflective clothing to be worn by vulnerable road user groups, enforcement of seatbelt laws and regular eyesight checks.

Keywords: Road traffic collisions; Epidemiology; Developing country; Developed country

doi:10.1016/j.injury.2009.06.240

6A.5

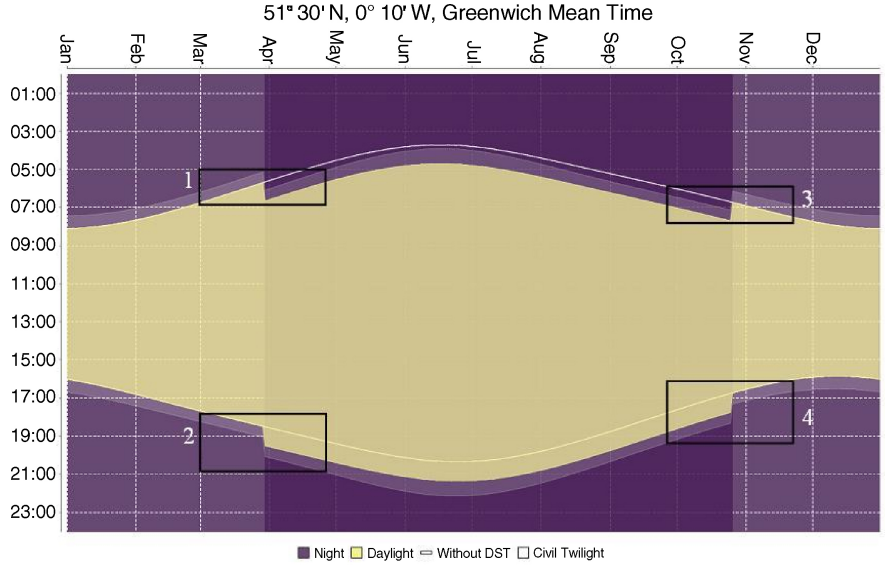
Daylight savings time (DST) transition: The effect on serious or fatal road traffic collision related injuries

J. Alsousou[a,*], T. Jenks[b], O. Bouamra[b], F. Lecky[b], K. Willett[a]

[a] *Oxford University, UK*
[b] *Trauma Audit & Research Network, UK*

Introduction: It has been suggested that the transition phases of implementing daylight saving time (DST) may impact on serious or fatal injuries sustained as the result of road traffic collision (RTC). The aim of this study is to explore the effects of transitions into and out of daylight saving time on the incidence of such injuries.

Method: This is a retrospective comparative observational study of 11-year of data submitted prospectively to the Trauma Audit Research Network (TARN) between 1996 and 2006. Data for 4 weeks before and after time transition in spring and autumn of each year was collected. The time periods selected reflect those hours with maximum light level changes due to time alterations (2-h around sunrise and 4-h around sunset). Travellers outside those hours are unlikely to be affected by the changes.



The chart plots the times of sunrise, sunset and light level with DST adjustment

Results: Out of 55,826 incidents in England and Wales, TARN returned 1296 incidents meeting the above time criteria, of which 282 involved a fatality. Overall, there were more crashes in autumn (845, 65.2%) comparing to spring period (451, 34.8%), with the majority occurring around sunset (1057, 81.5%). RTC related injuries at the onset of DST in spring showed a significant increase up to 14 days post-time change ($P = 0.029$), with the majority of the increase occurring at sunset. The highest increases occurred within the fatal incidents group ($P = 0.0019$) and affected mainly the pedestrian subgroup ($P = 0.013$). Changes in the incidence of injuries around the change back to Greenwich Mean Time (GMT) in autumn did not reach significance.

Conclusion: The use of DST over the period studied was associated with rise in RTC related injury figures up to two weeks following the spring time transition. These findings inform the continuing clock changes debate. The introduction of 2-h time change may result in detrimental effects on RTC related injuries.